

Notice of Allowability	Application No.	Applicant(s)	
	09/921,681	RITTER ET AL.	
	Examiner	Art Unit	
	Kimbinh T. Nguyen	2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to amendment filed 01/26/06.
2. ☒ The allowed claim(s) is/are 1-25 and 27-64.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|---|
| <ol style="list-style-type: none"> 1. <input type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date _____ 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | <ol style="list-style-type: none"> 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other _____ |
|---|---|

DETAILED ACTION

1. This action is responsive to amendment filed 01/26/06.
2. Claims 1-25, 27-64 are allowed.

EXAMINER'S AMENDMENT

3. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Jody Bishop on 04/14/06.

The application has been amended as follows:

Claim 62. The computer-executable software code of claim **49**

Allowable Subject Matter

4. The following is an examiner's statement of reasons for allowance:

Claim 1, the prior art does not teach rendering a digital image having surface reflectance properties, comprising the steps of: creating a parametric texture map that comprises parameters for an equation that defines a homogeneous surface structure in a manner in which the appearance of the surface structure includes surface reflectance properties, wherein said parametric texture map does not include variables representing surface position; and rendering a digital image using said parametric texture map.

Claim 11, the prior art does not teach for each texel of a texture, sampling surface reflectance data for a homogeneous surface and determining at least one

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coefficient of said parametric texture map based at least in part on the sampled surface reflectance data; and creating said parametric texture map, wherein said parametric texture map determines values for pixels of said digital image using an equation that is not a function of said pixels' surface positions.

Claim 19, the prior art does not teach a parametric texture map executable by said graphics processor, wherein said parametric texture map models a surface reflectance function defining surface reflectance properties for a homogeneous surface structure, and wherein said surface reflectance function comprises a Bidirectional Reflectance Distribution Function (BRDF).

Claim 27, the prior art does not teach a texture map data structure including a function for representing a texture map of a plurality of texels, said function evaluating at least two independent variables for defining an illumination vector and at least two independent variables for defining a view vector.

Claim 32, the prior art does not teach a texture map data structure including a function for representing a texture map of a plurality of texels, said function evaluating at least two independent variables for defining a half-angle vector and at least two independent variables for defining a difference vector.

Claims 36 and 39, the prior art does not teach using a texture map that includes a function for use in rendering a digital image having surface reflectance properties, wherein said function evaluates more than two variables directed to surface reflectance properties.

Claim 42, the prior art does not teach receiving more than two independent variables relating to surface reflectance properties of a digital image to be rendered; and using a function of a texture map for processing the received variables to render the digital image having surface reflectance properties in accordance with the received variables.

Claims 45 and 53, the prior art does not teach a texture map that includes a Bidirectional Reflectance Distribution Function (BRDF) for use in rendering a digital image, wherein said BRDF includes more than two variables relating to surface reflectance properties of said digital image.

Claim 49, the prior art does not teach code for receiving at least four independent surface reflectance property variables; and code for using a function included in a texture map for rendering a digital image, wherein said function evaluates the received at least four independent surface reflectance property variables to render said digital image having proper surface reflectance properties.

Claim 54, the prior art does not teach for each texel of a texture, sampling surface reflectance data and determining at least one coefficient of said parametric texture map based at least in part on the sampled surface reflectance data, wherein said step of determining further comprises performing a least squares fit algorithm to the sampled surface reflectance data.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably

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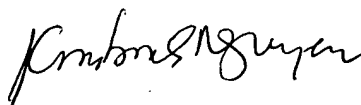
accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimbinh T. Nguyen whose telephone number is (571) 272-7644. The examiner can normally be reached on Monday to Thursday from 7:00 AM to 4:30 PM. The examiner can also be reached on alternate Friday from 7:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Razavi can be reached at (571) 272-7664. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

April 14, 2006



KIMBINH T. NGUYEN
PRIMARY EXAMINER